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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/300,494    04/28/99    CALDERBANK    A    CALDERBANK-1

LMC1/0719

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EXAMINER

PARK, A

ART UNIT

PAPER NUMBER

2734

DATE MAILED:

07/19/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/300,494

Applicant(s)  
Calderbank et al

Examiner  
Albert Park

Group Art Unit  
2734



☒ Responsive to communication(s) filed on Apr 28, 1999

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-14 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☒ Claim(s) 3-6 is/are allowed.

☒ Claim(s) 1, 2, 9, 10, 13, and 14 is/are rejected.

☒ Claim(s) 7, 8, 11, and 12 is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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## **DETAILED ACTION**

\* \* \*

This Office Action is furnished in accordance with Article 1, Section 8 of the Constitution of the United States , in order to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries, and in compliance with Title 35 of the United States Code and Title 37 of the Code of Federal Regulations.

\* \* \*

In response to the patent application for Calderbank et al filed 4/28/1999, claiming priority to a provisional application 60/099,212 filed 9/4/1998, the following Office Action is taken:

### ***Information Disclosure Statement***

1. Received 3/6/2000

### ***Drawings***

2. Drawings filed 4/28/99 are acceptable.

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***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2,9,10,13, and 14 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Naguib et al , "Space- time Coded Modulation for High Data Rate Wireless Communications", IEEE, 03/11/1997.

As applied to independent claim(s) 1 and 9, Naguib discloses a transmitter (Fig. 5) and receiver (Fig. 6) utilizing a channel encoder/decoder (block encoder/decoder) in sequence with a space-time encoder/decoder with a modulator/demodulator as explicitly shown in the figures; and further,

as applied to claim(s) 2, dependent on rejected claim 1 above, including a pulse shaping circuitry and at least two transmitting antennae as shown in Figure 5; and,

as applied to claim(s) 10, 13, and 14 , dependent on rejected claim 9 above, a detector employing either MMSE IC, or trellis, or convolutional decoding techniques presents no novelty over using Reed Solomon decoding techniques as these various decoding schemes are well known in the art and to one of ordinary skill in the art, the

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matter of substituting one of the former decoding techniques for the latter would have presented no formidable challenge.

Claims 1,2,9,10,13, and 14 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 97/416670.

As applied to independent claim(s) 1 and 9, WO 97/416670 discloses a transmitter (Fig. 21) and receiver (Fig. 22) utilizing a channel encoder/decoder (block encoder/decoder) in sequence with a space-time encoder/decoder with a modulator/demodulator as explicitly shown in the figures; and further,

as applied to claim(s) 2, dependent on rejected claim 1 above, including a pulse shaping circuitry and at least two transmitting antennae as shown in Figure 21; and,

as applied to claim(s) 10, 13, and 14 , dependent on rejected claim 9 above, a detector employing either MMSE IC, or trellis, or convolutional decoding techniques presents no novelty over using Reed Solomon decoding techniques as these various decoding schemes are well known in the art and to one of ordinary skill in the art, the matter of substituting one of the former decoding techniques for the latter would have presented no formidable challenge.

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***Allowable Subject Matter***

5. Claims 3-6 are allowed over the prior art of record.
6. Claims 7-8 and 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1] Calderbank et al (6,088,408) - discloses space-time encoding with pulse shaping and multiple antennae.

\* \* \*

**Any response to this action should be mailed to:**

**Commissioner of Patents and Trademarks  
Washington, D.C. 20231**

**or faxed to:**

**(703) 305-3988, (for Formal or Informal communications to be faxed directly to the Examiner , please call Examiner prior to faxing)  
(for Informal or draft communications, please label "PROPOSED" or "DRAFT")**

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or;

**(703) 308-9051, (for Formal communications intended for entry)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Park, who can be reached **Mondays and Tuesdays from 9:00 am to 5:30 pm**. If attempts to reach the examiner are unsuccessful then his supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Albert C. Park  
Patent Examiner  
(703) 308-7036

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
**GROUP 2700**